

WHAT IS CLAIMED IS:

1. A process for preventing damage inside a printing machine caused by microwave radiation emanating from microwave mechanisms,
5 preferably microwave fuser mechanisms (3), comprising: detecting an undesired effect of the microwave radiation is automatically, and limiting said detected undesired effect by countermeasures.
2. A process according to Claim 1, wherein an incorrect paper
10 weight of a printing medium is detected.
3. A process according to Claim 1, wherein a prolonged presence of printing medium in the area of the microwave mechanism (3) is detected.
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4. A process according to Claim 3, wherein detection is optically accomplished by at least one optical sensor.
5. A process according to Claim 3, wherein detection is
20 acoustically accomplished by at least one acoustical sensor.
6. A process according to Claim 1, wherein a change in the temperature of the printing medium is detected.
7. A process according to Claim 6, wherein the change in
25 temperature is optically detected.
8. A process according to Claim 6, wherein the change in temperature is detected by detection of a change in the reverse power of the
30 microwave mechanism (3).

9. A process according to Claim 1, wherein an electrical discharge inside the microwave mechanism (3) is detected.

5 10. A process according to Claim 9, wherein an electrical discharge is optically detected.

11. A process according to Claim 10, wherein an electrical discharge is electrically detected.

10 12. A process according to Claim 11, wherein an electrical discharge is acoustically detected.

13. A process according to Claim 1, wherein as a countermeasure, burning of the printing medium is suppressed.

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14. A process according to Claim 13, wherein burning of the printing medium is suppressed by interrupting the oxygen supply.

15 20 15. A process according to Claim 13, wherein burning of the printing medium is suppressed by mechanical suppression.

16. An apparatus for the prevention of damage inside the printing machine caused by microwave radiation emanating from microwave mechanisms (3), preferably microwave fuser mechanisms, comprising: at least
25 one detection mechanism for the detection of an undesired effect of microwave radiation and at least one mechanism for the execution of suitable countermeasures in response to detection of an undesired effect by said at least one detection mechanism.

30 17. Apparatus according to Claim 16, wherein a paper weight detection mechanism (12) is provided, preferably in the area upstream from said microwave mechanism (3).

18. An apparatus according to Claim 16, wherein a paper jam detection mechanism is provided in the area of said microwave mechanism (3).

5 19. An apparatus according to Claim 18, wherein said paper jam detection mechanism includes at least one optical sensor.

20. An apparatus according to Claim 18, wherein said paper jam detection mechanism includes at least one acoustical sensor.

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21. An apparatus according to Claim 16, wherein said detection mechanism includes at least one temperature detector.

15 22. An apparatus according to Claim 21, wherein said temperature detector includes optical elements for detecting optical changes of the printing medium that are a function of temperature.

20 23. An apparatus according to Claim 21, wherein said detection mechanism includes power measurement elements for detecting reverse power of said microwave mechanism (3).

25 24. An apparatus according to Claim 16, wherein said at least one mechanism for executing countermeasures is located in the area of said microwave mechanism (3), preferably in the area downstream from said microwave mechanism (3).

30 25. An apparatus according to Claim 24, wherein said at least one countermeasure mechanism incorporates a gas flooding mechanism (13) that includes at least those areas of said microwave mechanism (3) in which printing media are located.

26. An apparatus according to Claim 24, wherein said at least one countermeasure mechanism includes mechanical suppression for suppressing burning of the printing medium.

5 27. An apparatus according to Claim 16, wherein at least one electrical discharge detection mechanism (9) is provided in the area of said microwave mechanism (3).

10 28. An apparatus according to Claim 27, wherein said electrical discharge detection mechanism (9) includes at least one optical sensor.

 29. An apparatus according to Claim 27, wherein said electrical discharge detection mechanism (9) includes at least one electrical diode (17) for detecting changes in said electric field inside said microwave mechanism (3).

15 30. An apparatus according to Claim 27, wherein said electrical discharge detection system (9) includes at least one acoustical sensor.